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EXAMINER

PWU, JEFFREY C

ART UNIT PAPER NUMBER

2143

DATE MAILED: 09/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/755,027

Applicant(s)

FORSLOW, JAN

Examiner

Jeffrey C. Pwu

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 14, 25-39 and 58-71 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. A election was made with traverse to prosecute the invention of Group III, claims 1, 14, 25-39 and 58-71. Claims 2-13, 15-24, and 40-57 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

2. Claim(s) 55 are objected to because of the following informalities: there are two claims numbered as 55 due to a typographic error; claims 55-70 is therefore renumbered accordingly as being claims 56-71.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 14, 25-39 and 58-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 is unclear which part of the claims is the preamble and which is the subject matter. A preamble needs to be clearly defined.

6. Claim 1 is rejected as being vague and indefinite and is unclear of the term "possibly overlapping address realms".

7. Claim 14 recites the limitation "inter-domain mobility" in claim 1. There is insufficient antecedent basis for this limitation in the claim.
8. Claim 25 recites the limitation "the Ad-hoc Pn-demand Distance Vector" in claim 14. There is insufficient antecedent basis for this limitation in the claim.
9. Claim 26 recites the limitations "AODV" and "mobile node" in claim 25. There is insufficient antecedent basis for this limitation in the claim.
10. Claims 27-37 recite the limitation "handover mechanism". There is insufficient antecedent basis for the limitation in the claim.
11. Claims 38-39 recite the limitation "route optimization mechanism". There is insufficient antecedent basis for the limitation in the claim.
12. Claims 58-63 recite the limitation "the mobility routing proxy solution". There is insufficient antecedent basis for the limitation in the claim.
13. Claims 65-67 recites the limitation "the weight-controlled expanding ring search". There is insufficient antecedent basis for the limitation in the claim.
14. Dependent claims are rejected as being dependent upon rejected base claim.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2143

16. Claims 1, 14, 25-39 and 57-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Birenback et al. (U.S. 6,594,704).

(to examiner's best knowledge of the claimed limitations)

Birenback et al. teaches claims:

1. In an Internet, a network-based mobile workgroup system providing limited access for a selected set of initiating parties to an equally limited set of target parties, available in one or more mobile virtual private networks (M-VPNs) with *possibly* overlapping address realms. (title: "method of managing and using multiple virtual private networks in a router with a single routing table"; see col.2, line 58-col.3, line 5)

14. The network-based mobile workgroups of claim 1, wherein inter-domain mobility between mobile virtual private networks is performed using mobile IP and intra-domain mobility within each mobile virtual private network is performed using mobility routing. (col.4, lines 14-38)

25. The intra-domain mobility solution of claim 14, wherein the mobility routing protocol is the Ad-hoc On-demand Distance Vector (AODV) protocol. (col.4, line 39-col.5, line 50)

26. The intra-domain mobility solution of claim 25, wherein AODV is extended with a proactive routing update for active peers at handover of mobile node between old and new sinks (ingress mobility routers). (col.4, line 39-col.5, line 50)

Art Unit: 2143

27. The handover mechanism of claim 26, wherein the mobile node sends a hello message to its newly discovered sink with a destination sequence number set equal to the destination sequence number of the last registration reply that was distributed via the old sink. (col.4, line 39-col.5, line 50)

28. The handover mechanism of claim 27, wherein the new sink takes this first hello message as an indication that it now is asked to take the role of new sink in the core mobility router network for the mobile node. (col.4, line 39-col.5, line 50)

29. The handover mechanism of claim 28, wherein the new sink directly sends an unsolicited route reply in the direction towards the old sink, if it has an existing route towards the mobile node in its routing table and the destination sequence number is the same for this route as the one received from the mobile node in the hello message.
(RTG 40)

30. The handover mechanism of claim 29, wherein the new sink sends a route request with the destination sequence number set to the same value as received from the mobile node in the hello message. (col.4, line 39-col.5, line 50)

31. The handover mechanism of claim 30, wherein the old sink, or any mobility router along the path to the old sink, will respond with a route reply message. (col.4, line 39-col.5, line 50)

32. The handover mechanism of claim 31, wherein the new sink sends an unsolicited route reply message for the mobile node destination with the route request source IP address set to the old sink and the destination sequence number incremented by one. (col.4, line 39-col.5, line 50)

33. The handover mechanism of claim 32, wherein the old sink and all mobility routers along the path between the old and the new sink are updated with the new route having a better destination sequence number. (col.4, line 39-col.5, line 50)

34. The handover mechanism of claim 33, wherein the old sink will forward all packets destined to the mobile node along the route via the new sink. (col.4, line 39-col.5, line 50)

35. The handover mechanism of claim 34, wherein a route reply is sent from the old sink via the new sink to the mobile node to indicate that the handover procedure has been successful, alternatively that the new sink sends a route error to the mobile node if it cannot reach the old sink. (col.4, line 39-col.5, line 50)

36. The handover mechanism of claim 35, wherein the mobile node now can migrate datagram forwarding from the link of the old sink to the link of the new sink. (col.4, line 39-col.5, line 50)

37. The handover mechanism of claim 36, wherein at successful handover procedure the mobile node may at its leisure decide to optimize the path towards active peers, by initiating route requests towards those destinations; while route requests are sent immediately towards active peers in case of a unsuccessful handover procedure. (col.4, line 39-col.5, line 50)

38. The route optimization mechanism of claim 37, wherein the source sequence number in the route request to an active peer is set equal to the new destination sequence number of the mobile node. (fig.2)

39. The route optimization mechanism of claim 38, wherein the route replies of the route request establishes a bi-directional, optimal path between the mobile node and his peer. (figs. 1 & 2)

58. The intra-domain mobility solution of claim 25, wherein the mobile service router sink for a mobile node also acts as a proxy for all mobility routing protocol exchanges for the mobile node towards the network. (see Birenback's IP protocol)

59. The mobility routing proxy solution of claim 57, wherein the mobile node uses a Dynamic Host Configuration Protocol (DHCP) request as its hello message to a new sink. (col.4, line 53-col.5, line 11)

Art Unit: 2143

60. The mobility routing proxy solution of claim 58, wherein the mobile node includes its IP address and authenticator as part of the DHCP request. (see Birenback's IP protocol)

61. The mobility routing proxy of claim 59, wherein the mobile service router sink, maps the DHCP request to a DIAMETER request sent to the mobile service manager for authentication. (see claims 1-4)

62. The mobility routing proxy of claim 60, wherein the mobile service router sink initiates a route request on behalf of the mobile node when receiving a datagram from the mobile node. (col.4, line 39-col.5, line 50)

63. The mobility routing proxy of claim 61, wherein the mobile service router sink buffers the received datagrams until a path is established to the destination. . (col.4, line 39-col.5, line 50)

64. The intra-domain mobility solution of claim 25, wherein weights are assigned to neighbor hops in order to limit broadcast route requests using when applying expanding ring search in AODV. . (col.4, line 39-col.5, line 50)

65. The weight-controlled expanding ring search of claim 63, wherein the weight for a hop can be administratively configured on the mobile service router. (fig.2)

Art Unit: 2143

66. The weight-controlled expanding ring search of claim 64, wherein the sum of weights from the source IP address of the request to the mobile service router handling the request is used to select path. . (col.4, line 39-col.5, line 50)

67. The weight-controlled expanding ring search of claim 65, wherein the mobile service routers to send an expanding ring search route request to is limited to the ones with the lowest sum of weights from the source IP address of the request to the candidate neighbor mobile service router. (col.4, line 14-col.5, line 7)

68. The intra-domain mobility solution of claim 25, wherein the source of a route reply may proactively initiate a gratuitous route reply towards a source of a route request in order to provide continuous streaming of datagrams for active sessions. (col.4, line 14-col.5, line 7)

69. The gratuitous route reply of claim 67, wherein the source of a route reply sends the gratuitous route reply if the life time of the route is running out within a configured number of seconds and datagrams are received along the path. (col.4, line 14-col.5, line 7)

70. The gratuitous route reply of claim 68, wherein the configured number of seconds left on the route lifetime triggering gratuitous route reply from the route reply source is larger than the configured number of seconds left on the route lifetime triggering a new

Art Unit: 2143

route request from the route request source. (col.4, line 14-col.5, line 7)

71. The gratuitous route reply of claim 68, wherein the gratuitous route reply is being unicast along the spanning tree already created for the active sessions towards the destination. (col.4, line 14-col.5, line 3)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey C. Pwu whose telephone number is 571-272-6798.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



7/17/05

JEFFREY PWU
PRIMARY EXAMINER